(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 May 2004 (06.05.2004)

PCT

(10) International Publication Number
WO 2004/037657 A2

(51) International Patent Classification[7]: B65D

(21) International Application Number:
PCT/US2003/033667

(22) International Filing Date: 22 October 2003 (22.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/419,975 22 October 2002 (22.10.2002) US

(71) Applicant *(for all designated States except US)*: **MEADWESTVACO CORPORATION** [US/US]; MEADWESTVACO CORPORATION, 299 PARK AVENUE, 13th FLOOR, New York, NY 10171 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **GELARDI, John** [US/US]; P.O. BOX 714 ROCKY PASTURE, Kennebunkport, ME 04046 (US).

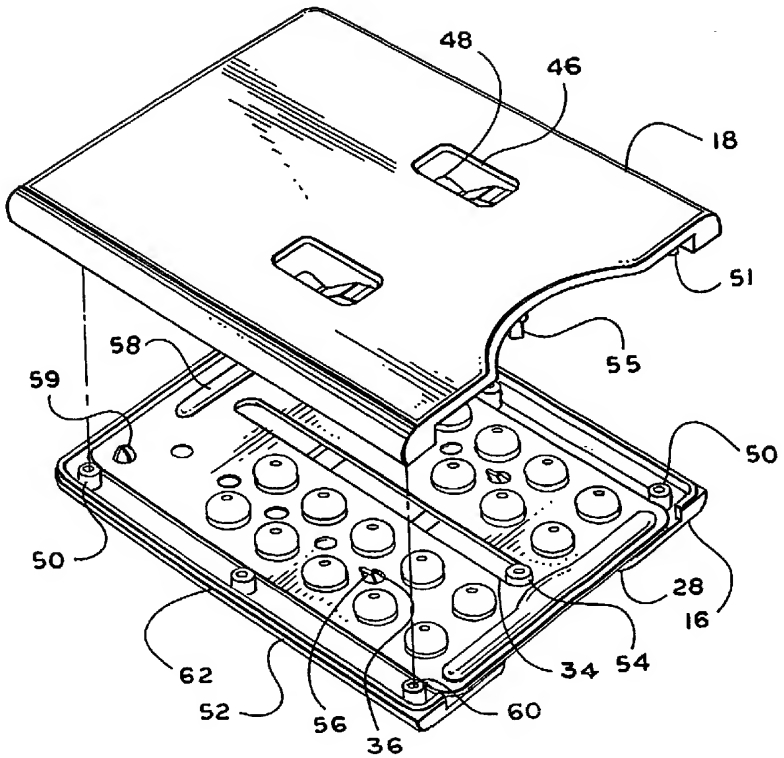
(74) Agents: **DREW, Michael** et al.; Meadwestvaco Corporation, 299 Park Avenue, 13th Floor, New York, NY 10171 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: UNIT DOSE CASSETTE CONTAINER WITH LOCKING SLEEVE



(57) Abstract: A package has a sliding bubble container tray and a locking sleeve made from a base and a top. The tray is made from conventional blister dose packaging material, with bubbles formed in a single layer plastic top holding pills on a sealing paper or foil layer. The sealing layer is punched beneath one bubble at a time to release one dose. The bubble tray is placed on the sliding guides of the base and between guiding cylinders, with one cylinder in the slot, and detents in a pair of openings. Then the top is added. The pins are inserted in the cylinders, and springs formed in holes of the top urge the bubble tray toward the guides on the base. The top and base are welded together. Pressing inward on the T-shaped bar on the base warps a part of the tray between ribs against the force of springs away from the base. The warping of the tray moves the holes away from the detents so that the tray may be slid through the open end of the sleeve. The strongest element is the laminated bubble tray, which is a conventional blister package. The plastic blister layer and the paper laminate provide strength. A constant containment element surrounds the blister package and forms the new locking package. One set of holes in parallel series of holes limits dosage. A push, hold, pull and release sequence limits the exposure of blisters to four. Reverse pressure easily slides the blister package back into the containment elements without manipulation of parts.

WO 2004/037657 A2

SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Unit Dose Cassette Container with Locking Sleeve

BACKGROUND OF THE INVENTION

Locking containers, especially childproof locking containers, in which multiple movements must be applied to open the container, have many uses. One use for locking containers is medicine containers. Locking caps on medicine bottles are well known. The caps usually require alignment and tipping of caps or axial pressure or inward radial squeezing while turning the caps to remove the caps from the containers and to provide access to medicine therein.

Many medicines are packaged in flat boxes, which are difficult to secure with childproof locks. Many medicines are sold in blister packs with bubbles formed in a plastic sheet sealed by a paper layer or foil which is punctured sequentially to release one dose from one bubble. When a cardboard sleeve is opened, the entire contents of the package are exposed, making all of the doses immediately available by puncturing the sealing sheet.

Needs exist for flat boxes that have locks which require multiple coordinated motions for opening. Needs exist for packages that present a limited number of doses at one time. Needs exist for inexpensive locking boxes.

SUMMARY OF THE INVENTION

This new invention fulfills needs in single dose packaging.

A child-resistant safety container for medications stored in a blister pack has a two-piece molded plastic sleeve closed on three edges. A rectangular blister pack is slidable through the open fourth edge to expose a single row of bubbles upon a coordinated manipulation of the parts. Posts

molded on one side are welded with hollow cylinders molded on the other side. Energy directors may sonically weld side edges, as well as the posts and cylinders. One post fits through a slot in the blister pack tray and acts as a guide and travel limit when the tray is slid in and out. Two flexible springs and four fixed rails are molded on a first side and hold the blister pack against a second side of the sleeve. Two molded catches fit through a pair of openings which are a part of two series of openings in the blister pack. Pressing on a T-shaped lever distorts the blister pack so that the molded catches no longer engage the openings in the blister pack, which can be slid out of the container. Hooks on ends of the catches grab the next pair of holes, limiting dosage exposure to a single row of bubble. Ramps on the backs of the catches depress the blister pack as it is slid inward. The guide post passing through the slot in the blister pack tray prevents the tray from being fully removed from the envelope.

The package has a sliding bubble container tray and a locking sleeve made from a base and a top. The tray is made from conventional bubble dose packing material with bubbles formed in a single layer plastic top holding pills on a sealed paper or foil base. The paper or foil is pushed in, cut or punched beneath one bubble at a time to release one dose. A standard bubble tray or blister pack is used and provides all necessary structural rigidity. The bubble tray is placed on the sliding guides of the base, between guiding cylinders, with the cylinder in the slot, and detents in a pair of openings. Then the top is placed on the base. The pins are inserted in the cylinders. Springs formed in holes of the top urge the bubble tray toward

the guides on the base. The top and base are welded together.

Pressing inward on the T-shaped bar on the base warps a part of the tray between ribs against the force of springs away from the base. The warping of the tray moves the paired holes away from the detents so that the tray may be slid through the open end 40 of the sleeve.

A preferred unit dose container apparatus has a tray with plural unit dose holders. A container has top and base components with opposite sides and a closed end for holding the tray. An open end opposite the closed end allows sliding of the tray through the open end.

Connectors on the components hold the top and base components closed on the tray. Preferably, one of the components has an inward extending lug. The tray has an opening with a closed end for engaging the lug and preventing excessive movement of the tray with respect to the container. Cooperating detents on the tray and on the container prevent relative sliding of the tray and the containers.

A biaser is connected to the container for biasing the cooperating detents out of engagement for permitting relative sliding of the tray through the open end of the container and for permitting access to the unit dose holders. The biaser comprises a lever integrally formed with, and hinged to, one of the components and movable inward in the container for warping the tray and releasing the cooperating detents. The lever has a hinge-end hinged to the one component and has a free end freely movable into the container for warping the tray.

Preferably, the free end has an inward extension for contacting and

warping the tray. The free end of the lever is relatively wider and the hinged-end is relatively narrower, and the cooperating detents comprise pairs of cooperating detents spaced apart near the wider free end of the lever. The free end of the lever must bias all detents in one pair out of engagement for permitting the relative sliding of the tray through the open end of the container.

The cooperating detents further comprise tray-mounted detents and container-mounted detents, and the container-mounted detents have sloping ramp surfaces facing the open end for biasing the tray-mounted detents away from the container-mounted detents and disengaging the detents upon inward sliding of the tray toward the closed end of the container.

The tray has an outward extending stop near the closed end of the container for preventing removal of the tray from the container.

The top and base components have inward facing interlocking pins and receivers for strapping the components together.

Edges of the components at side and closed ends of the containers have energy directors for sonically welding the component edges together.

The cooperating detents comprise tray-mounted detents and container-mounted detents extending inward from one of the components near the free end of the lever for engaging the tray-mounted detents. The detents may also extend inward from one of the components for engaging the tray-mounted detents.

The cooperating detents comprise a hole in the tray and an inward

extending detent in the container for engaging the hole in the tray. The cooperating detents may also comprise a series of holes in the tray and inward extending detents in the container for selectively engaging the series of holes in the tray.

A spring extends inward in the container opposite from the biaser for urging the cooperating detents into engagement.

Ribs inside the components slide the tray on the ribs. A break in the ribs is opposite the biaser, and springs extend inward in the break in the ribs for urging the cooperating detents into engagement and for allowing separation of the cooperating detents upon pushing the biaser inward against the force of the springs. An enlargement on one end of the tray near the open end of the container enables closing of the open end when the tray is fully inserted in the container.

A preferred method of providing access to unit dose trays, comprises placing doses in holders on a tray and closing the holders. The tray is placed in a base component of a container. A top component is placed over the tray and over the base component and the top component is closed on the base component. Opposite side walls and an end wall with the components are closed, leaving an open end. Travel of the tray is limited with a lug on the container and a closed extremity of an elongated opening in the tray.

Cooperating detents on the tray and on the containers engage and hold the tray in the container while the cooperating detents are engaged. The cooperating detents bias and disengage, allowing movement of the tray through the open end of the container for allowing access to the holders.

The biasing also comprises moving a part of one of the components with respect to the container, and moving a free end of a lever integrally formed in the component around a hinged end of a lever.

The disengaging of the cooperating detents comprises moving a portion of the tray with respect to the container. The disengaging of the cooperating detents may also comprise moving holes in the tray away from fixed detents extending inward from one of the components.

The tray is urged toward the fixed detents with spring force.

The open end of the container is closed, and a ledge extends outward from one end of the tray when the tray is fully inserted in the container.

The tray is slid on ribs which extend inward from the components, providing gaps in the ribs on one component, and providing springs in the gaps for disengaging the cooperating detents by pressing a portion of the tray into the gaps against spring pressure.

In a preferred embodiment, the strongest element is the bubble tray, which is a conventional blister package. The whole cross-section of the plastic blister layer and the paper base provides strength. A constant containment element surrounds the blister package and forms the new locking package. One set of holes in a parallel series of holes limits dosage exposure. A push, hold, pull and release sequence limits the exposure of blisters to four. Reverse pressure easily slides the blister package back into the containment element without manipulation of parts.

These and further and other objects and features of the invention are apparent in the disclosure, which includes the above and ongoing written

specification, with the drawings and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a bottom view of the open locking package.

Figure 2 is a top view of the open locking package.

Figure 3 is a top view of the closed locking package.

Figure 4 is a partially exploded top view of the closed locking package.

Figure 5 is an exploded bottom view of the container.

Figure 6 is an exploded top view of the container.

Figure 7 is a partially cross-sectional top view of the locking package.

Figure 8 is a partially cross-sectional top detail of the locking package.

Figure 9 is a top view of the open container base and bubble tray.

Figure 10 is a top view of the closed container base and bubble tray.

Figure 11 is a bottom view of the closed package.

Figure 12 is a side cross-sectional detail showing the relative positions of elements of the base and top.

Figure 13 is a side cross-sectional detail showing positions of elements of the base, top and bubble tray.

Figure 14 is a side cross-sectional detail showing positions of elements of the base, top and bubble tray.

Figure 15 is a bottom view of the closed package with the push-hold release bar pressed inward.

Figure 16 is a bottom view of the closed package.

Figure 17 is an inside perspective view of the base.

Figure 18 is an inside perspective view of the top.

Figure 19 is an inside perspective view of the bubble tray.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 is a bottom view of the open locking package. As shown in Figure 1, a locking cassette container 10 has a sliding unit dose bubble package tray 12 with a locking sleeve 14. The locking sleeve has a base 16 and a top 18. A biaser, for example shown as a push-hold T-shaped release bar, is formed in an opening 21 and is connected to and integrally formed with the container by a thin resilient section or lever 22. Pushing on the free end 24 of the push-hold release bar or biaser frees the tray 12. Gripping the exposed end 26 of the tray in the recess 28 in the open end of the base enables the outward sliding in the direction of arrow 29 while the biaser 20 is held inward in the sleeve base 16.

Figure 2 is a top view of the open locking package. As shown in Figure 2, the bubble package tray 12 has single dose-containing bubbles 30 arranged in four columns 32. The tray is constructed of the same materials with strengths and thicknesses as are conventional in bubble package trays sold in traditional rectangular cardboard sleeves, which are sealed on folded ends.

The bubble tray 12 has a central slot 34, which guides the tray and prevents removal of the tray from the sleeve 14. Holes 36 positioned between the bubbles 30 cooperate with detents on the base to prevent outward movement of the tray until it is intentionally and properly released.

A rib 38 at the end of the tray closes the open end 40 of the sleeve 14 when the tray is pushed inward, preventing access to the bubbles 30. Tab 42 fits within cutout 44 and aids in outward sliding of the tray. Openings 46 in the sleeve top 18 allow the inward forming of springs 48 which press the tray against ribs on the base 16.

Figure 3 is a top view of the closed locking package. In the closed position the rib 38 closes open end 40 of the sleeve. The rib 38 presses against the inside of the top 18.

Figure 4 is a partially exploded top view of the closed locking package. In the configuration shown in Figure 4, before the top 18 is assembled on the base 16, the tray has already been placed on the base. Cylinders 50 along side walls 52 of the base 16 are ready to receive pins 51 extending downward from an inside of the top. A lug 54 centered near the recess 28 at the open end of the base extends through the central slot 34 in the tray 12, ready to receive the central pin 55 on the top. Detents 56 are shown projecting through the first set of holes 36 to lock the tray 12 in the sleeve 14.

A rib 58 at the inner end of the sleeve fits between springs 48. The inner rib 58 and raised dots 59 ride against the inside of the top 18 to stabilize the tray as it is extended.

The top 18 is pressed onto the bottom, with the pins 51 and 55 pressed into the cylinders or lugs 50 and 54. Energy directors 60 on insides of the cylinders and 62 along the side walls 52 of the base 16 fuse and weld the top to the base under pressure and ultrasonic energy.

Figure 5 is an exploded bottom view of the container. Connecting

pins 51 and 55 extend from cylindrical bases 61 and 65. The inside of the top 18 has ribs 64 aligned with springs 48 to hold the tray against guides on the inside of the base. The ribs 64 and springs 48 are of sufficient height so that the bubbles are spaced from the inside of the top. The head 24 of the biaser 20 is aligned with the springs to warp the tray in the direction of the springs at gaps 66 between inner ends 68 of the ribs 64, and thus to release the tray from the detents.

Figure 6 is an exploded top view of the container. Guides 70 on the inside of the base facilitate sliding of the tray. Ridges 72 at the inside of base side walls 52 may fit inside of complementary side walls on the top 18. Biaser 20 has a rib 74 on the inside of the head 24 of the T-bar. Rib 74 cooperates with the detents 56. As the rib 74 is pushed inward, an adjacent part of the bubble tray is warped toward the top 18 against the force of springs 48, releasing the tray from engagement with detents 56. Detents 56 have straight or hook-shaped inward faces 76 to hold the trays and prevent outward movement unless biaser 20 and rib 74 warp the tray away from the detents. Sloping outer faces or ramp surfaces 78 on the detents warp the trays away from the detents upon inward movement of the trays, allowing free inward movement upon pushing on the free ends of the trays.

Figure 7 is a partially cross-sectional top view of the locking package. Detent 56 is shown with its locking or holding face 76 engaging hole 36 in tray 12. Pushing inward on head 24 of the push-hold bar causes rib 74 to warp the tray toward the top 18 in the area between inward facing ends 68 of ribs 64. The warping of the tray disengages holes 36 from the detents 56

so the tray may be pulled outward using tab 42. After a pill is removed from a bubble 30, the tray may be slid inward. While the detents 56 drop into the holes 36 during inward sliding, the sloped surfaces 78 urge the holes and the trays away from the detents 56.

Figure 8 is a partially cross-sectional top detail of the locking package. As shown in Figure 8, the detents 56 may have hooks 80 on ends of their holding faces 76 to ensure against unwanted outward movement of the tray. The warping of the tray snaps the engaged holes 36 away from the hooks.

Figure 9 is a top view of the open container base and bubble tray. The tray 12 is shown in its outermost position 82 with respect to the base 16 in Figure 8. End 84 of slot 34 engages the central cylinder or lug 54.

Figure 10 is a top view of the closed container base and bubble tray. In Figure 10 the tray 12 is shown in its innermost position 86 with the central cylinder or lug 54 positioned in the end 88 of slot 34. End 92 of tray 12 abuts the inside of the end wall 94 of the base 16.

Figure 11 is a bottom view of the closed package. In Figure 11 the biaser 20 is shown as molded, in an inward position in base 16 of the locking sleeve 14.

Figure 12 is a side cross-sectional detail showing the relative positions of elements of the base and top. In the detail of Figure 12, the top 18 and base 16 are shown in molded position. The biaser 20 is molded inward, and is pressed outward by a tray. The spring 48 is molded inward in the top 18, so that it extends slightly beyond the inward extension of ribs 64. Thus, the

springs support the tray in holding the T-bar outward.

The sloping back surface 78 of the detent 56 and the inward surfaces of ribs 64 are radiused 92, 94 along with other tray-contacting surfaces to facilitate sliding of the tray or moving of the surfaces. The outer surface 96 of the push bar has frictional grooves 98 to aid in pushing the bar inward.

Figure 13 is a side cross-sectional detail showing positions of elements of the base, top and bubble tray. In Figure 13 the biaser 20 and the spring 48 are shown in positions after inserting the tray.

Figure 14 is a side cross-sectional detail showing positions of elements of the base, top and bubble tray. Figure 14 shows the spring 48 and biaser 20 in molded position with respect to the tray 12 to show how the tray pushes the biaser 20 back to a position level with the base.

Figure 15 is a bottom view of the closed package with the push-hold release bar pressed inward to enable outward sliding of the tray 12. Figure 15 shows the package with the biaser 20 pressed inward. Edges of the guides 70 and slot 34 in slide are seen through opening 21 in base 16.

Figures 16, 17, 18 and 19 show the locking package and its elements. Package 10 has a sliding bubble container tray 12 and a locking sleeve 14 made from a base 16 and a top 18. The tray is made from conventional bubble dose or blister pack packaging material with bubbles 30 formed in a single layer plastic top holding pills 100 on a bubble-sealing paper or foil base. The paper, slit or foil is punched beneath one bubble at a time to release one dose. The bubble tray is placed on the sliding guides 70 of the base and between guiding cylinders 50, with the cylinder or lug 54 in the slot

34, and detents 56 in a pair of openings 36. Then top 18 is inverted. The pins 51 and 55 are inserted in the cylinders or lugs 50 and 54, and springs 48 formed in holes 46 of the top 18 urge the bubble tray 12 toward the guides 70 on the base 16. The top and base are welded together. Pressing inward on the biaser 20 on the base 16 warps a part of the tray 12 between ribs 64 against the force of springs 48 away from the base. The warping of the tray moves the holes 36 away from the detents 56 so that the tray 12 may be slid through the open end 40 of the sleeve 14.

The strongest element is the bubble tray, which is a conventional blister package. The whole laminated cross-section of the plastic blister layer and the paper base provides strength. A constant containment element surrounds the blister package and forms the new locking package. Detents in one set of holes in parallel series of holes limits dosage. A push, hold, pull and release sequence limits the exposure of blisters to four. Reverse pressure easily slides the blister package back into the containment elements without manipulation of parts.

While the invention has been described with reference to specific embodiments, modifications and variations of the invention may be constructed without departing from the scope of the invention.

I claim:

1. A unit dose container apparatus, comprising:

a tray having plural unit dose holders;

a container having top and base components with opposite sides and a closed end for holding the tray;

an open end opposite the closed end for allowing sliding of the tray through the open end;

connectors on the components for holding the top and base components closed on the tray;

an inward extending lug on one of the components;

the tray having an opening with a closed end for engaging the lug and preventing excessive movement of the tray with respect to the container;

cooperating detents on the tray and on the container for preventing relative sliding of the tray and the container; and

a biaser connected to the container for biasing the cooperating detents out of engagement for permitting relative sliding of the tray through the open end of the container and for permitting access to the unit dose holders.

2. The apparatus of claim 1, wherein the biaser further comprises a lever integrally formed with and hinged to one of the components and movable inward in the container for warping the tray and releasing the cooperating detents.

3. The apparatus of claim 2, wherein the lever has a hinge end hinged to the one component and has a free end freely movable into the container for warping the tray.

4. The apparatus of claim 3, wherein the free end has an inward extension for contacting and warping the tray.

5. The apparatus of claim 3, wherein the free end of the lever is relatively wider and the hinged end is relatively narrower, and wherein the cooperating detents comprise pairs of cooperating detents spaced apart near the wider free end of the lever, wherein the free end of the lever biases all detents in one pair out of engagement for permitting a relative sliding of the tray through the open end of the container.

6. The apparatus of claim 3, wherein the cooperating detents further comprise tray-mounted detents and container-mounted detents, and wherein the container-mounted detents have sloping ramp surfaces facing the open end for biasing the tray-mounted detents away from the container-mounted detents and disengaging the detents upon inward sliding of the tray toward the closed end of the container.

7. The apparatus of claim 3, wherein the tray has an outward extending stop near the closed end of the container for preventing removal of the tray from the container.

8. The apparatus of claim 3, wherein the top and base components have inward facing interlocking pins and receivers for strapping the components together.

9. The apparatus of claim 1, wherein edges of the components at side and closed ends of the containers have energy directors for sonically welding edges of the components together.

10. The apparatus of claim 3, wherein the cooperating detents

comprise tray-mounted detents and container-mounted detents extending inward from the one of the components near the free end of the lever for engaging the tray-mounted detent.

11. The apparatus of claim 3, wherein the cooperating detents comprise tray-mounted detents and container-mounted detents extending inward from the one of the components for engaging the tray-mounted detents.

12. The apparatus of claim 3, wherein the cooperating detents comprise a hole in the tray and an inward extending detent in the container for engaging the hole in the tray.

13. The apparatus of claim 3, wherein the cooperating detents comprise a series of holes in the tray and inward extending detents in the container for selectively engaging the series of holes in the tray.

14. The apparatus of claim 1, further comprising a spring extending inward in the container opposite from the biaser for urging the cooperating detents into engagement.

15. The apparatus of claim 1, further comprising ribs inside the components for sliding the tray on the ribs, a break in the ribs opposite the biaser, and springs extending inward in the break in the ribs for urging the cooperating detents into engagement and for allowing separation of the cooperating detents upon pushing the biaser inward against force of the springs, and an enlargement on one end of the tray near the open end of the container for closing the open end when the tray is fully inserted in the container.

16. The method of holding and providing access to unit dose trays, comprising:

placing doses in holders on a tray and closing the holders;

placing the tray in a base component of a container;

placing a top component over the tray and over the base component and closing the top component on the base component;

closing opposite side walls and an end wall with the components and leaving an open end;

limiting travel of the tray with a lug on the container and a closed extremity of an elongated opening in the tray;

engaging cooperating detents on the tray and on the containers and holding the tray in the container while the cooperating detents are engaged; and

biasing and disengaging the cooperating detents and allowing movement of the tray through the open end of the container for allowing access to the holders.

17. The method of claim 16, wherein the biasing further comprises moving a part of one component with respect to the container.

18. The method of claim 16, wherein the biasing comprises moving a free end of a lever integrally formed in the component around a hinged end of a lever.

19. The method of claim 16, wherein the disengaging of the cooperating detents comprises moving a portion of the tray with respect to the container.

20. The method of claim 16, wherein the disengaging of the cooperating detents comprises moving holes in the tray away from fixed detents extending inward from one of the components.

21. The method of claim 20, further comprising urging the tray toward the fixed detents with spring force.

22. The method of claim 20, further comprising closing the open end of the container with a ledge extending outward from one end of the tray when the tray is fully inserted in the container.

23. The method of claim 16, further comprising sliding the tray on ribs extending inward from the components, providing gaps in the ribs on one component, and providing springs in the gaps for disengaging the cooperating detents by pressing a portion of the tray into the gaps against spring pressure.

Fig. 1

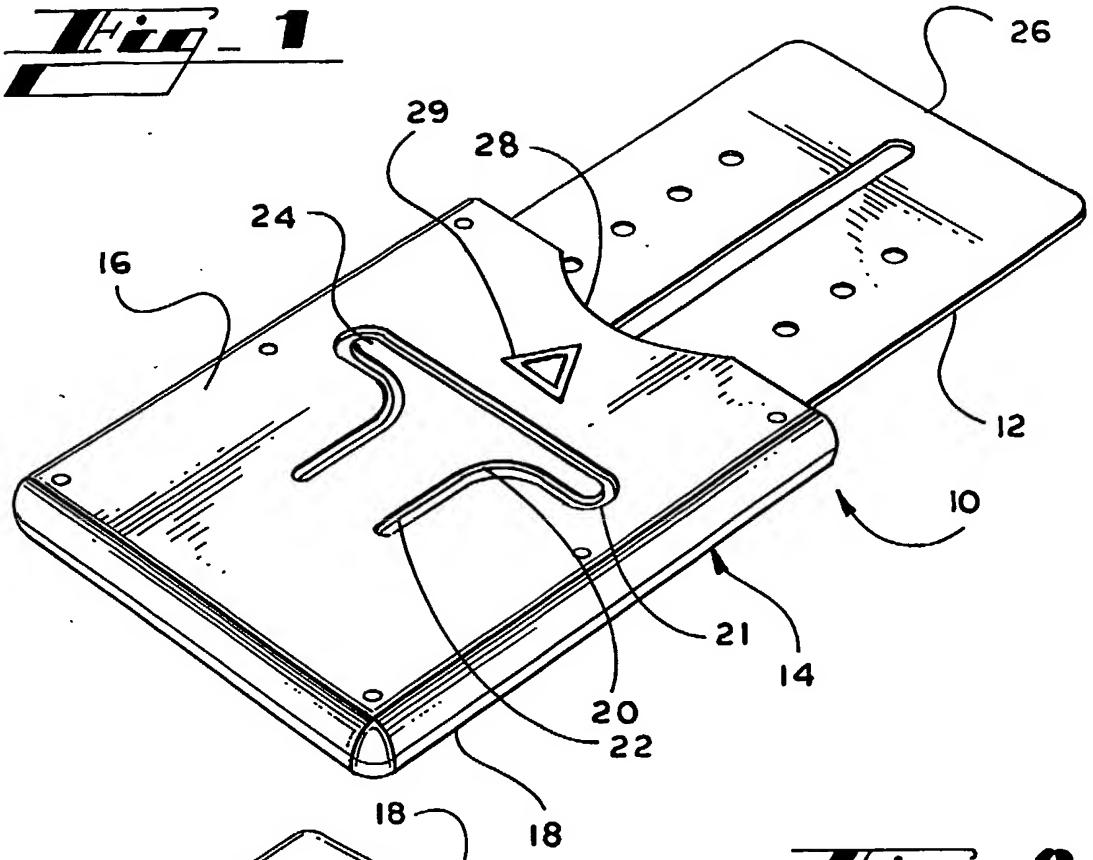
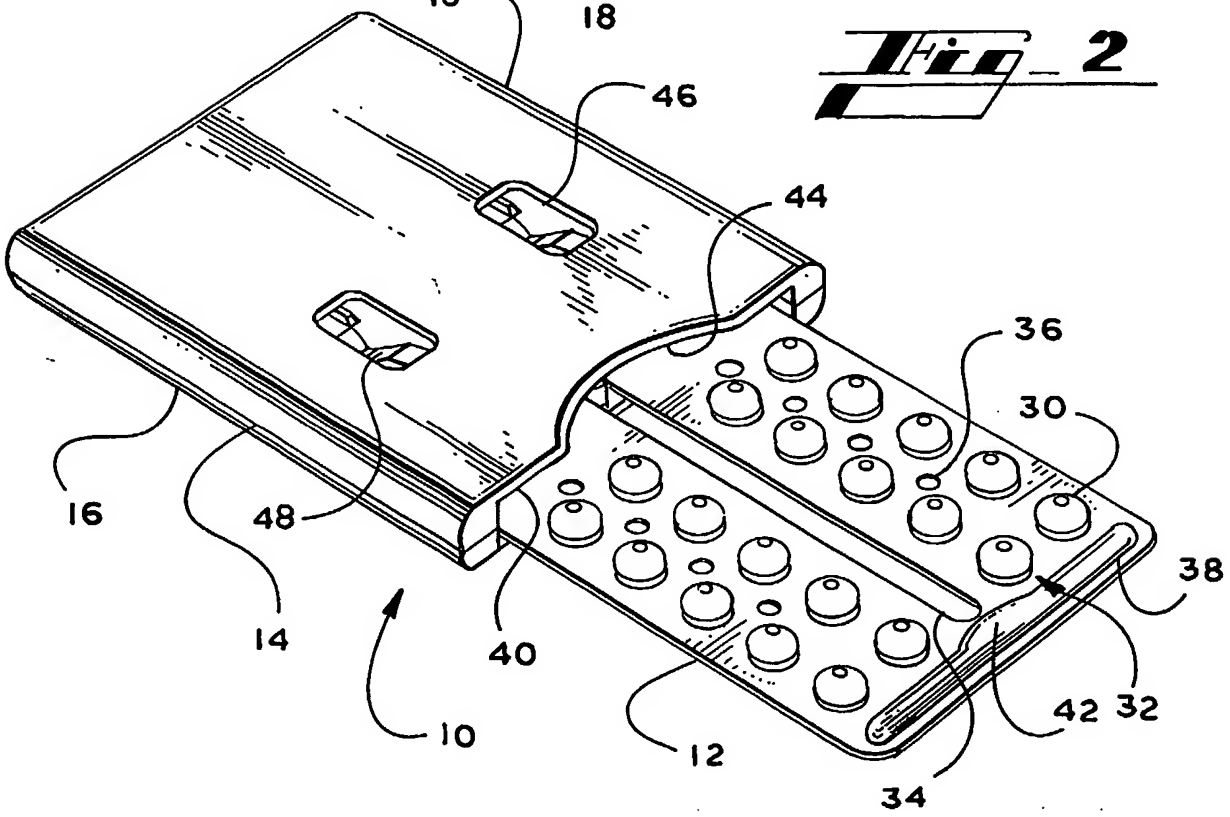

26
29
28
24
16
12
10
21
14
20
22
18
18

Fig. 2


46
44
36
30
16
48
38
14
40
42
32
10
12
34

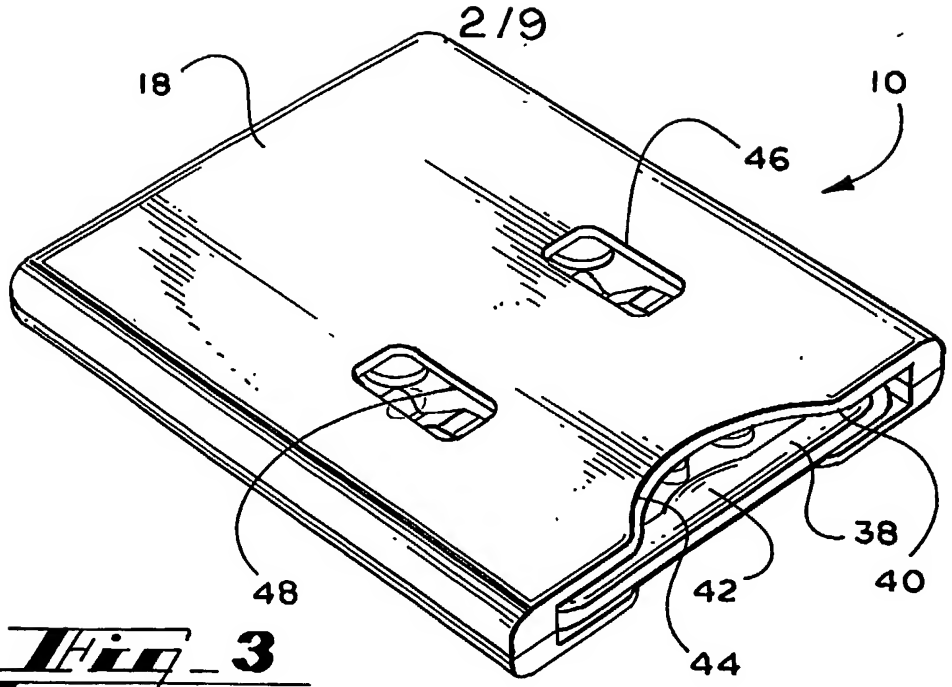
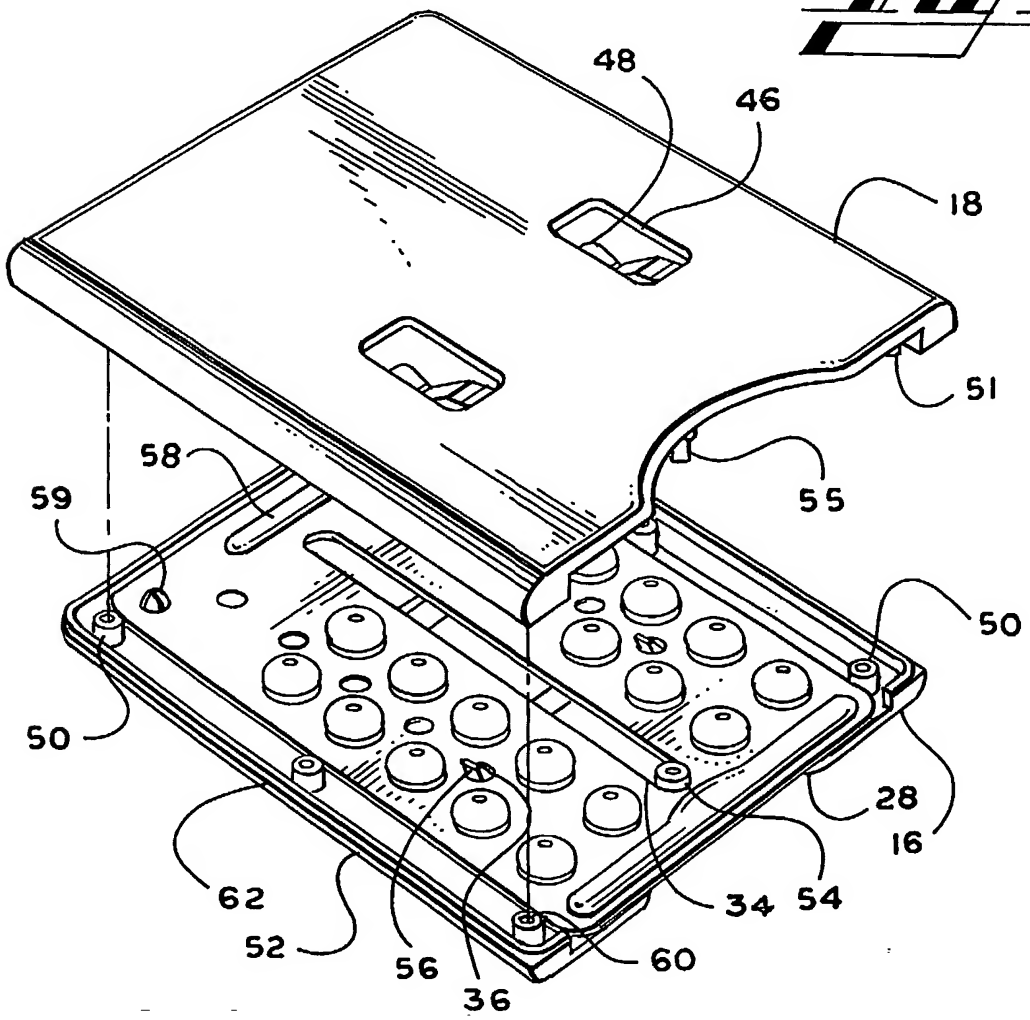

18
10
46
48
42
38
40
44

Fig. 3

Fig. 4


48
46
18
51
58
59
55
50
50
28
16
62
34
54
52
56
60
36

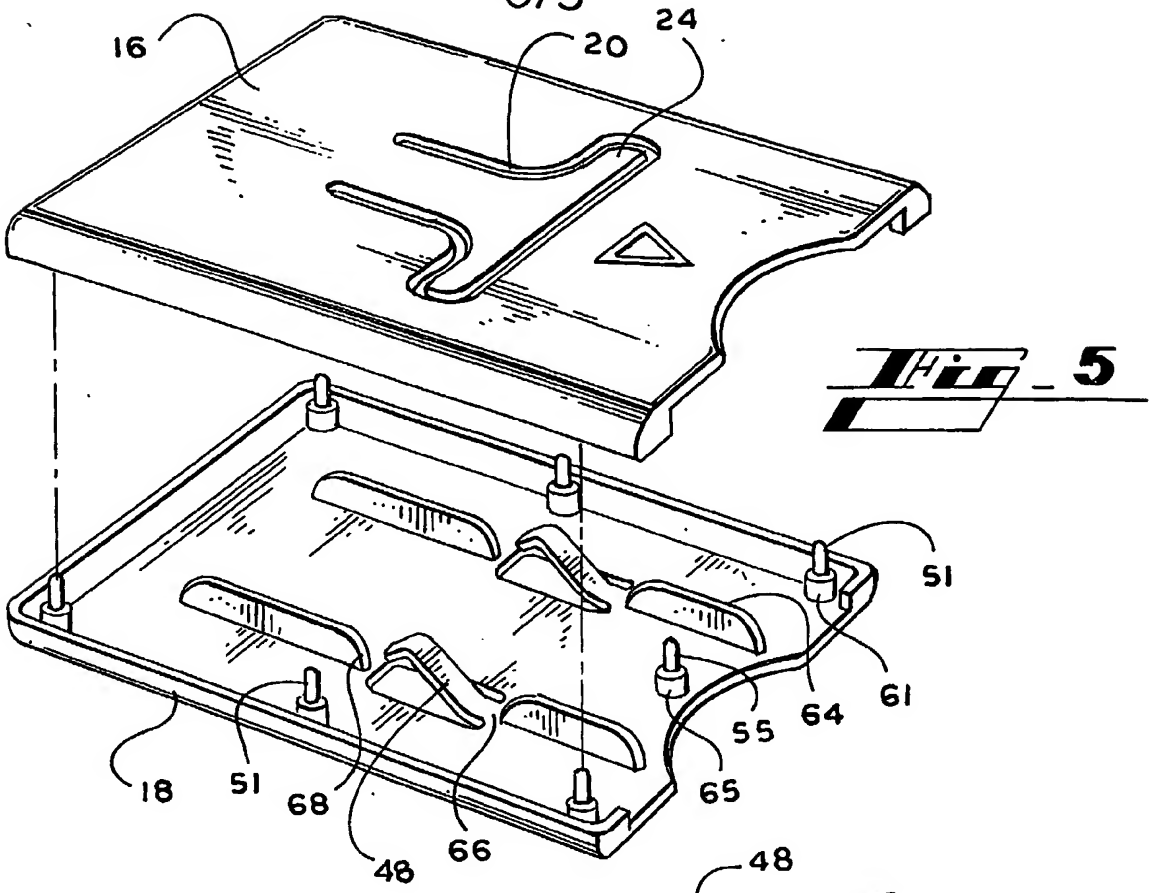

16
20
24
51
61
64
55
65
18
51
68
66
48

Fig_5

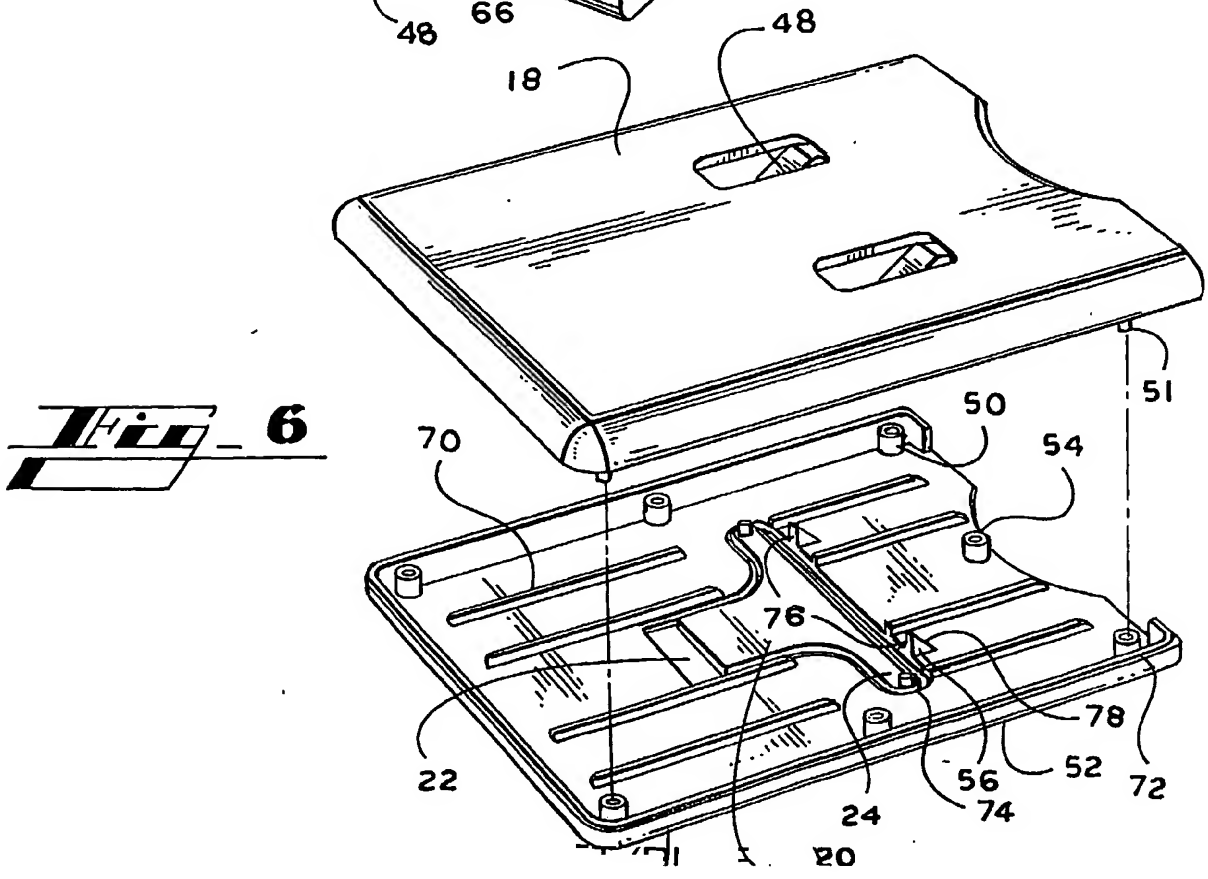

48
18
51
50
54
70
76
78
52
72
22
56
74
24
20

Fig_6

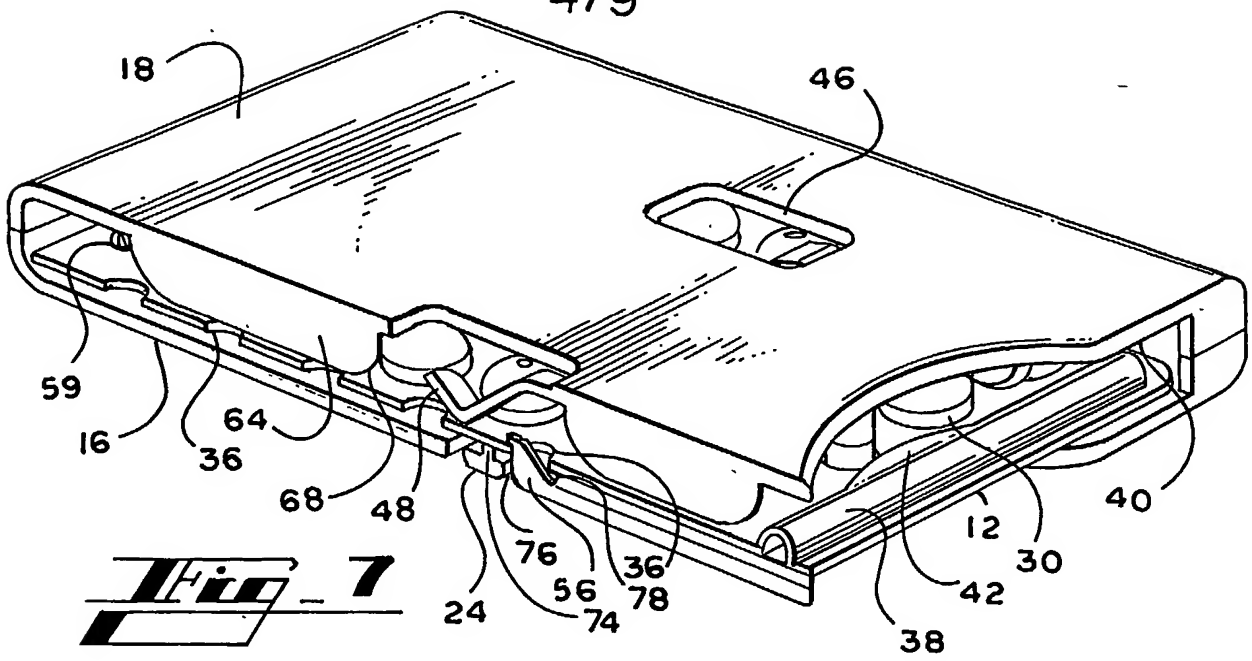

18
46
59
16
64
36
68
48
76
56
74
24
36
78
12
30
42
38
40

Fig_7

Fig_8

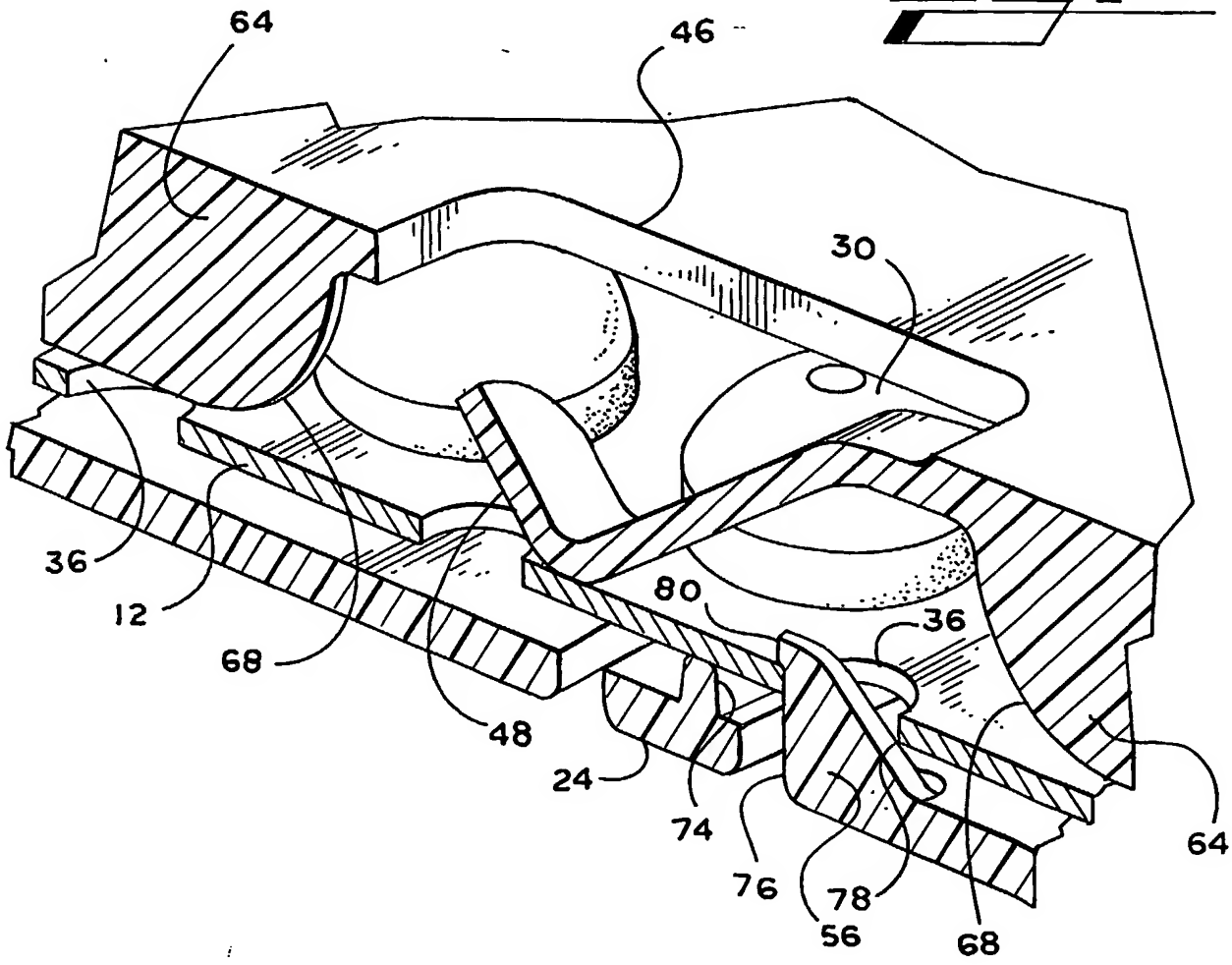

64
46
30
36
12
68
48
24
80
36
74
76
78
56
68
64

Fig_9

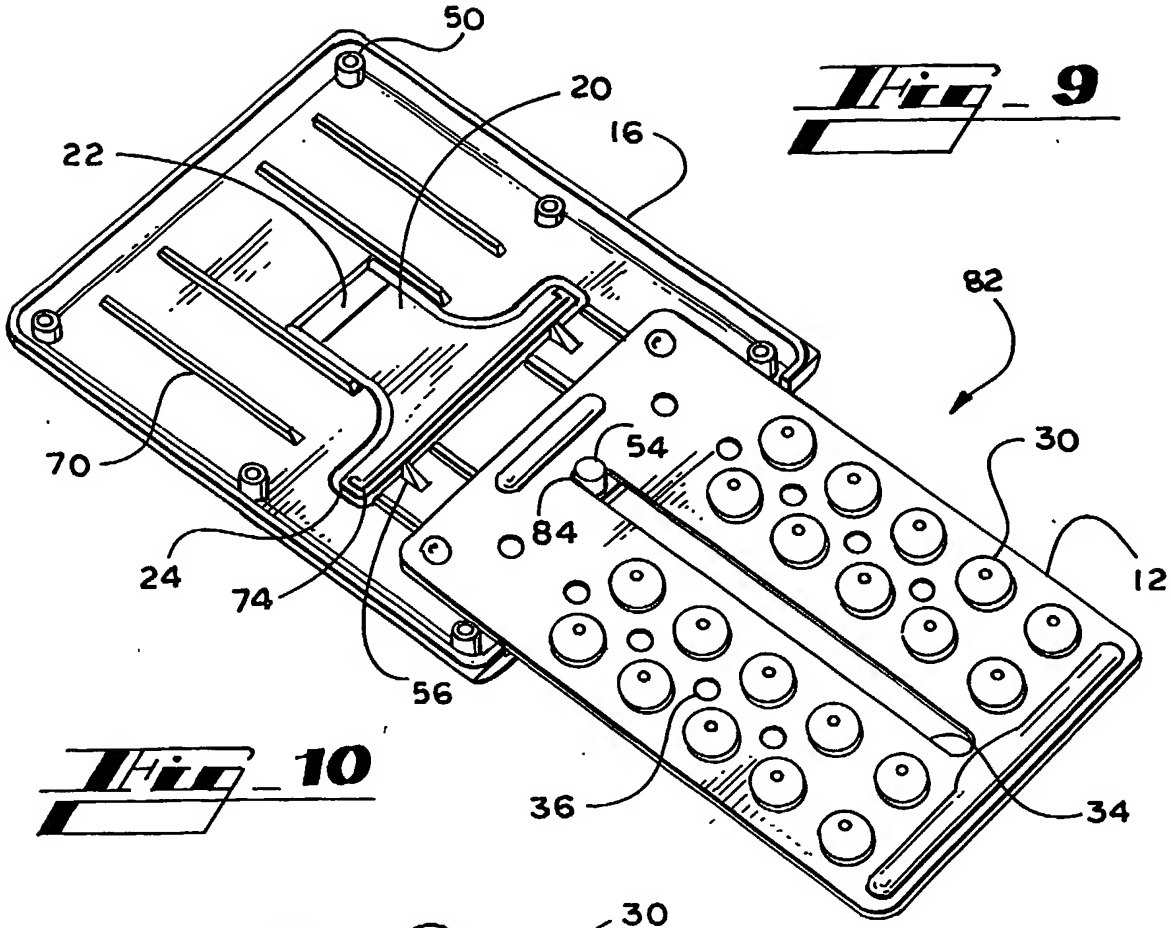
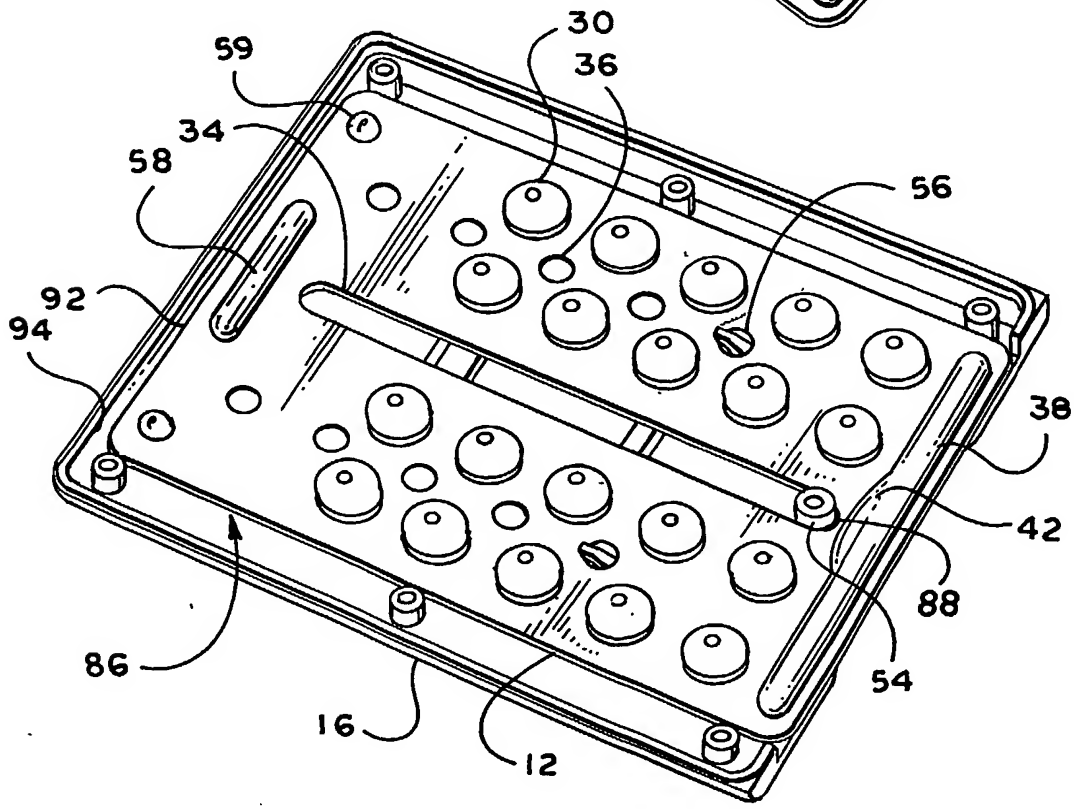

50
20
16
22
82
70
54
30
84
24
74
12
56
36
34

Fig_10


30
59
36
34
58
56
92
94
38
42
88
86
54
16
12

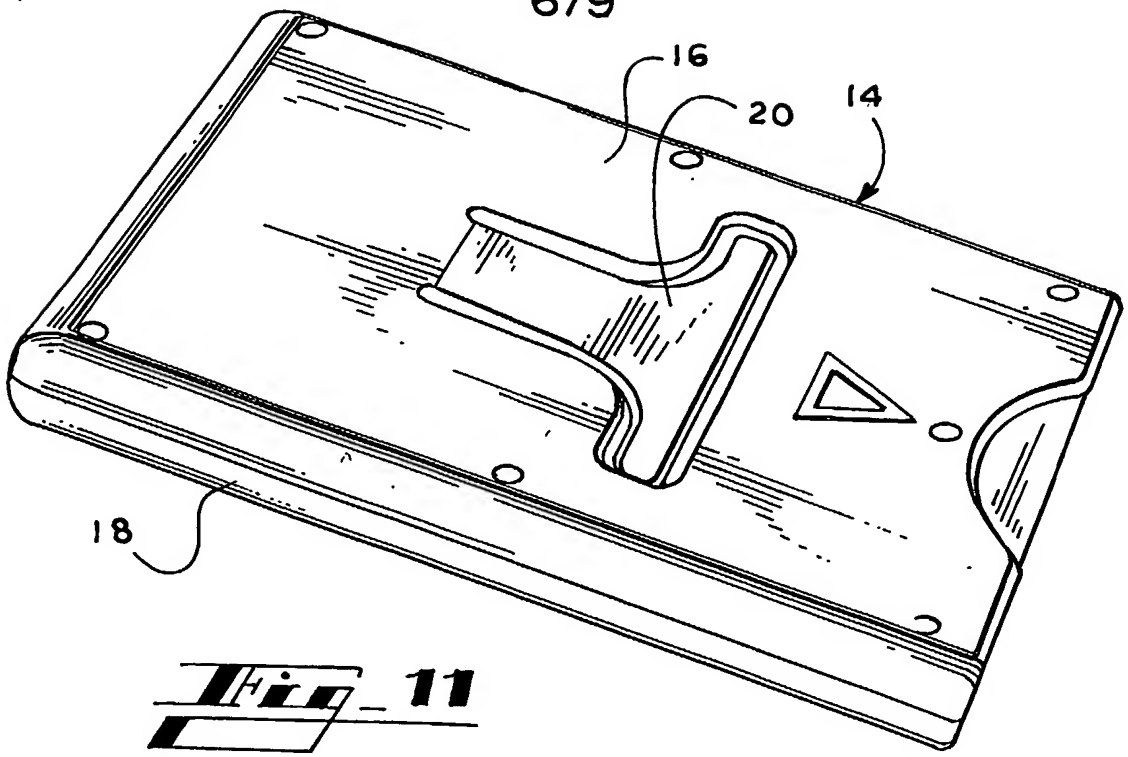
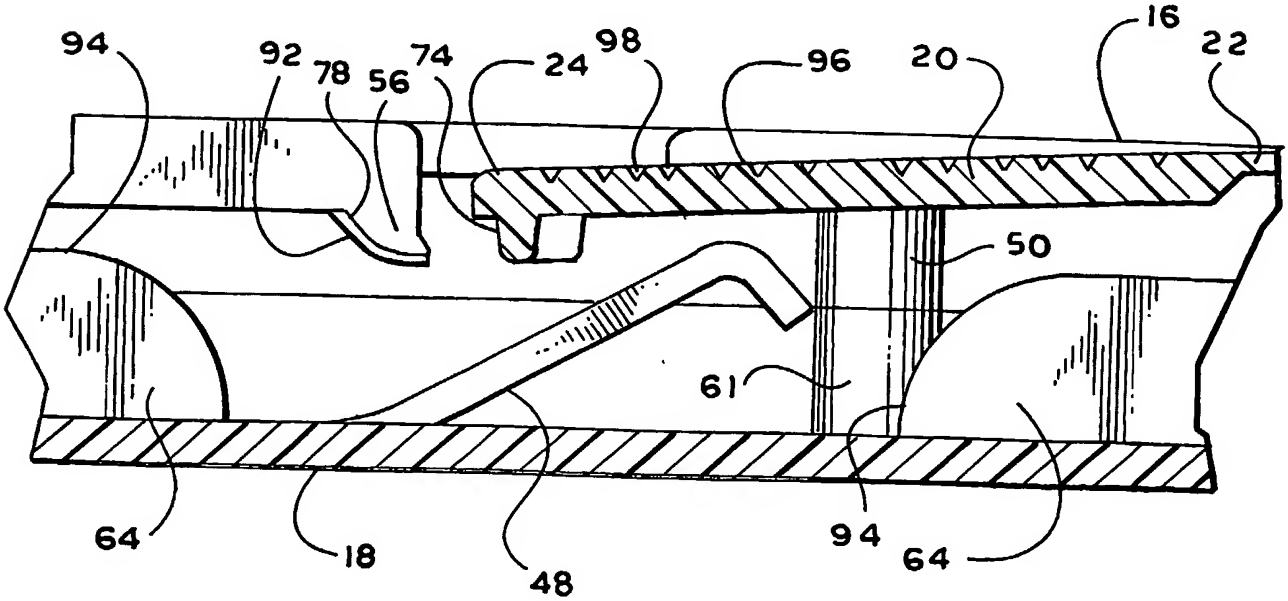


Fig_11

Fig_12



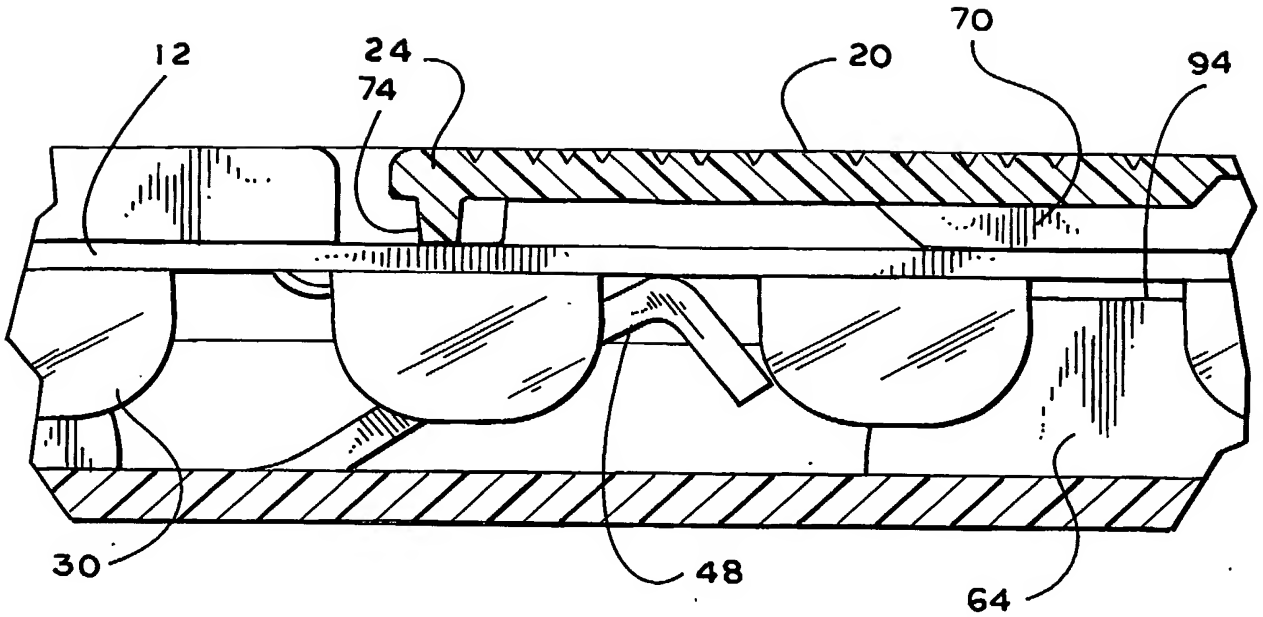


Fig_13

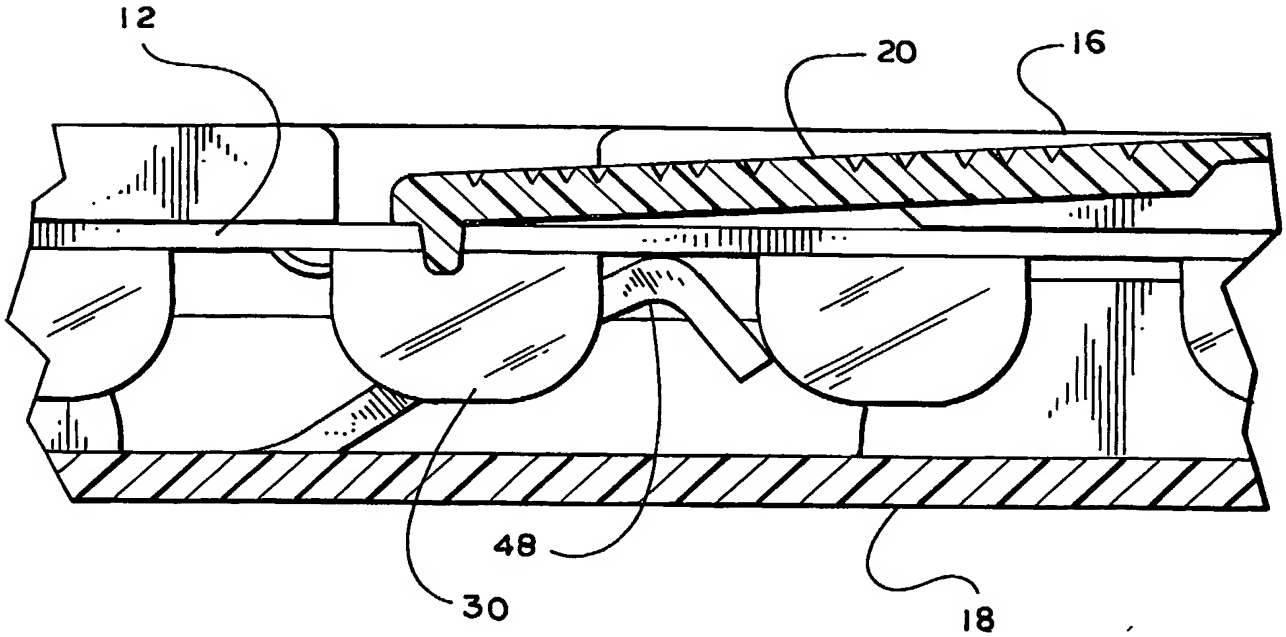


Fig_14

Fig_17

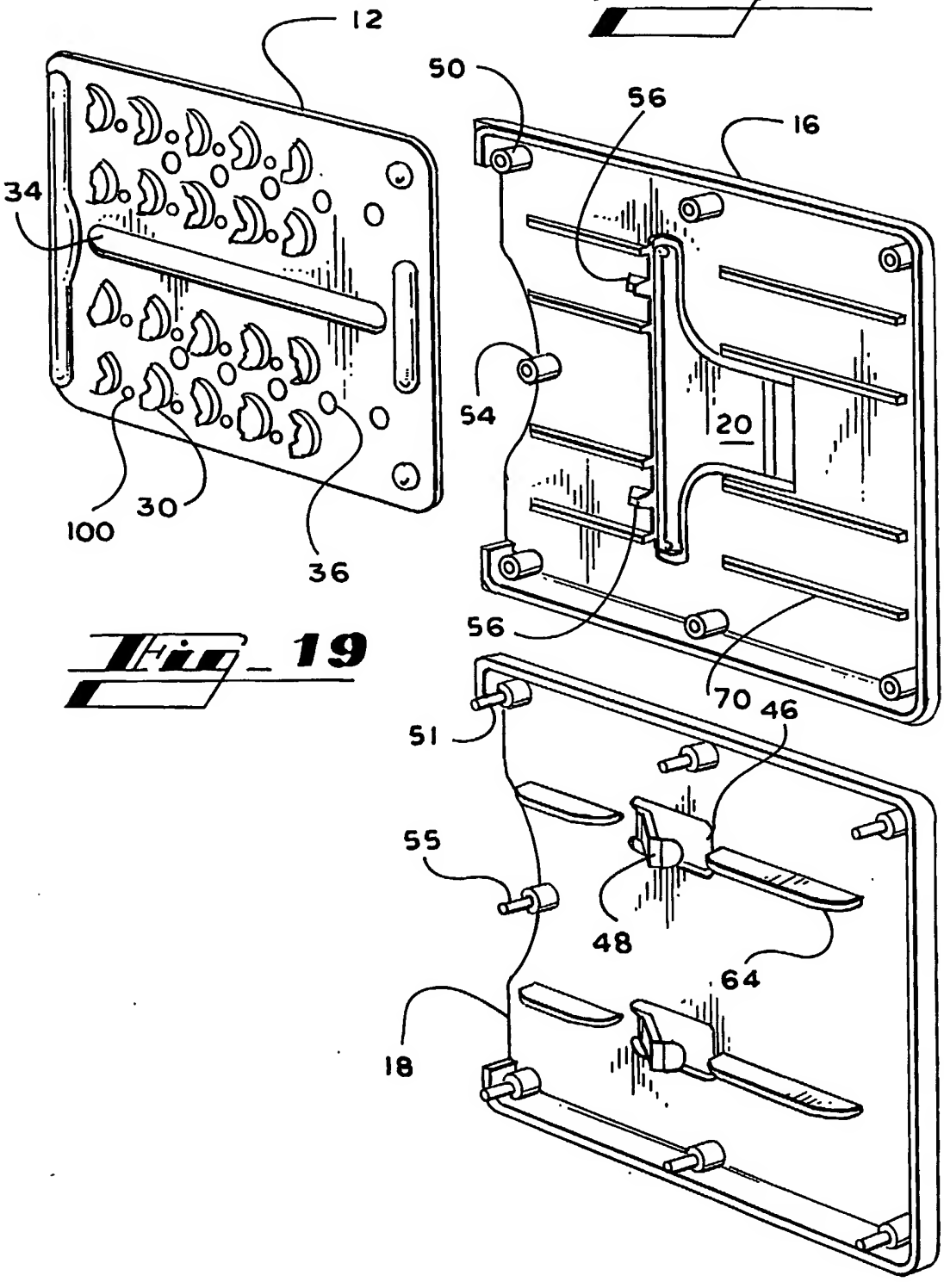


Fig_19

Fig_18

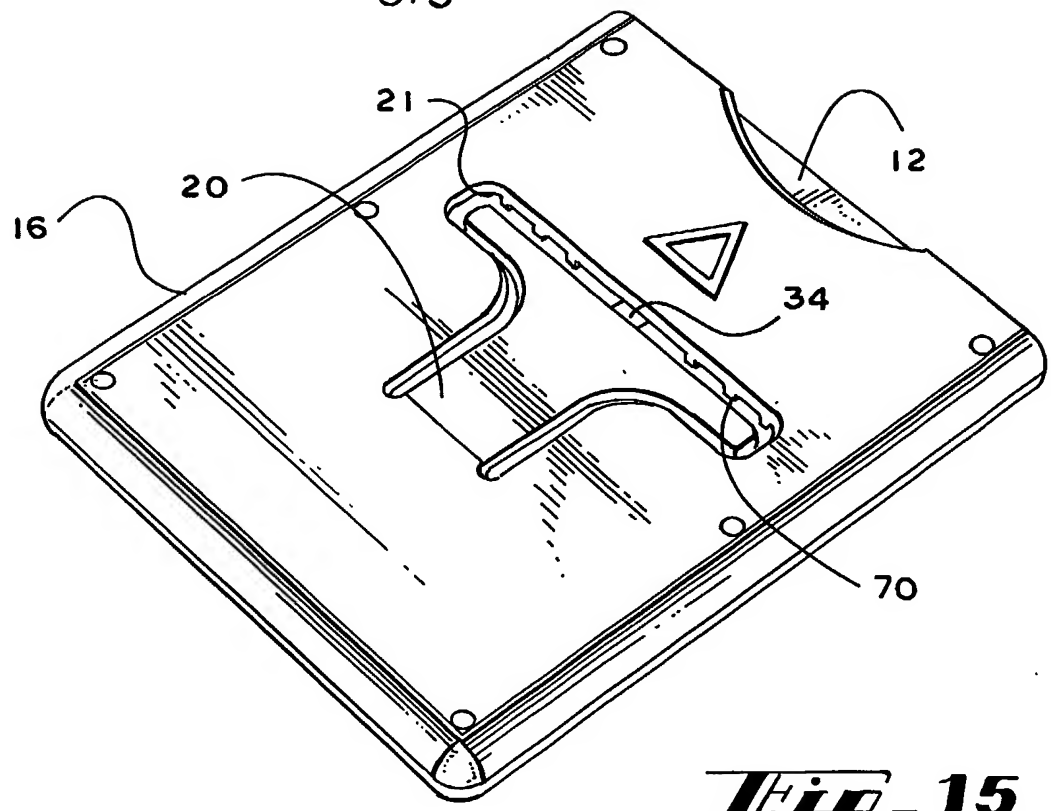


Fig_15

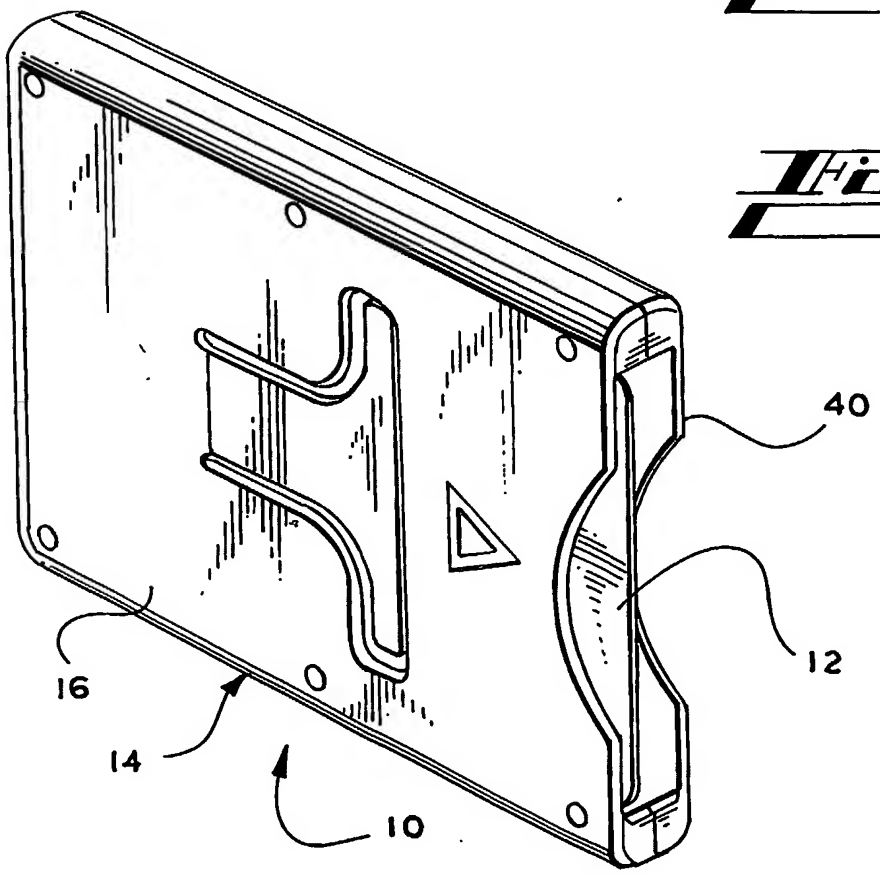


Fig_16